RIVERS AND FLOODS

By MONTROSE W. HAYES

[In charge River and Flood Division]

During May 1933 minor floods occurred in Michigan, in the Santee and Savannah Rivers on the Atlantic slope, in the West Pearl and Bogue Chitto Rivers in the east Gulf of Mexico drainage, in the Trinity River in Texas, and in the Colorado River system. In addition, moderate to severe floods occurred in the Maumee River in Indiana, in the rivers of the upper Mississippi, Ohio, White, Arkansas, and Lower Mississippi Basins and in the Columbia River on the Pacific slope. Some of these floods were continuations of the floods of the preceeding months and information on all of them is not complete. A discussion of the floods of March, April, and May will appear in a later issue of the REVIEW.

THE WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

[By the Marine Division, W. F. McDonald, in charge]

NORTH ATLANTIC OCEAN

By W. F. McDONALD

Atmospheric pressure.—May 1933 was a month with average pressure remarkably close to normal over most of the North Atlantic Ocean. There was a maximum deficiency of less than two tenths of an inch in the vicinity of the Straits of Belle Isle, and an equal excess in the average for the Shetland Islands. Monthly average pressures otherwise varied less than a tenth of an inch from their respective normals.

Belle Isle was the point of largest barometric fluctuation during the month (as shown by fixed stations in table 1), with a range of values from 29.02 to 30.24 inches. Ships' reports, however, revealed a wider range of values than did land stations. The lowest reading at sea was 28.80, about 200 miles east of Cape Race, reported by the U.S. Coast Guard cutter *General Greene*, on the 15th, and the highest, 30.56, was reported by the American S.S. *Ala*, near 49° N., 25° W., on the 24th.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, May 1933*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	In.	*In.*	*In.*		*In.*	
Julianehaab, Greenland	29.63	-------	30.04	13	29.24	9
Reykjavik, Iceland	29.94	+0.02	30.25	27	29.52	20
Lerwick, Shetland Islands	29.99	+.19	30.25	22	29.68	9
Valencia, Ireland	29.93	−.02	30.28	23	29.42	3
Lisbon, Portugal	30.03	+.06	30.21	8,9	29.49	2
Madeira	30.06	+.05	30.19	22	-------	-------
Horta, Azores	30.14	−.02	30.39	24	29.71	2
Belle Isle, Newfoundland	29.75	−.19	30.24	31	29.02	15
Halifax, Nova Scotia	29.91	−.06	30.34	1	29.42	14
Nantucket	29.96	−.03	30.31	1	29.57	4
Hatteras	29.98	−.03	30.27	19	29.62	3
Bermuda	30.05	−.06	30.22	19	29.84	3,7,9
Turks Island	29.99	−.01	30.10	11	29.88	2,3,31
Key West	29.96	−.01	30.10	12	29.78	3
New Orleans	29.93	−.04	30.16	20	29.57	4
Cape Gracias, Nicaragua	29.85	−.05	29.94	6	29.78	3,14

NOTE.—All data based on a.m. observations only, with departures compiled from best available normals related to time of observations, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

Cyclones and gales.—The month opened with a depression centered between the Azores and Portugal, attended by winds that reached whole gale force on the 1st, and continued of force 9 until the 3d.

From May 4th to 10th there was considerable cyclonic action between the American coast and Iceland, which produced scattered gales from day to day over a wide extent of the northern steamer lanes west of longitude 25°. The highest wind force of the month was reported during this period by the American steamship *American Farmer*, bound from New York to London, when, between 8 and 11 p.m. on the 7th, she encountered a sharp increase of wind from force 7 to force 11, near 40° N., 56° W.

Widespread gales were again reported on the 15th and 16th, over mid-Atlantic from the Azores to the Grand Banks. The series of cyclonic developments with which these gales were connected began with a small disturbance over Nova Scotia on the 11th, that moved slowly northeast and lingered over the western Atlantic until the 14th, when another low moved eastward from the St. Lawrence Valley, merged with that already in the Atlantic, and on the 15th, off Newfoundland, produced the deepest and most extensive low pressure area of the month. This low gradually spread out and diminished in intensity; reached maximum extent by the 20th, at which time it dominated all of the ocean north of the Azores; and died out within a few days thereafter.

After the 22d, there were only a few relatively weak and unimportant disturbances, which, however, produced scattered gales over the northeastern Atlantic.

There was, throughout the month, a noteworthy persistence of the high pressure belt over middle latitudes. It was not completely disrupted at any time, but was most greatly weakened and displaced far southward by the large cyclonic development of the 15th, described above.

Tropical storms.—A weak disturbance of tropical origin affected the western Caribbean and southern Gulf of Mexico between the 14th and 17th. It seems to have attained maximum intensity in the Yucatan Channel on the evening of the 15th, when the Honduran steamship *Sinaloa* observed a barometer reading of 29.58 inches, attended by shifting winds that for a short time reached the force of a strong gale. No other wind of gale force was reported in connection with this disturbance, which died out in the Gulf of Mexico.

Fog.—May, as usual, brought a great increase in the extent and frequency of fog on the North Atlantic. Fog was reported from every square along the main northern steamer routes, and southward past the Azores in mid-Atlantic, while reports in American waters were unusually numerous and ran far southward between the 70th and 75th meridians, almost to the latitude of the Bahamas. Ships' officers in several instances commented especially upon the unusual occurrence of fogs so far southward over the route between New York and the West Indian Passages.

Between Hatteras and Nova Scotia, fog occurred on 8 to 15 days; southeast of the Grand Banks and over the approaches to the English Channel, on 5 to 9 days; and with lesser frequency elsewhere.